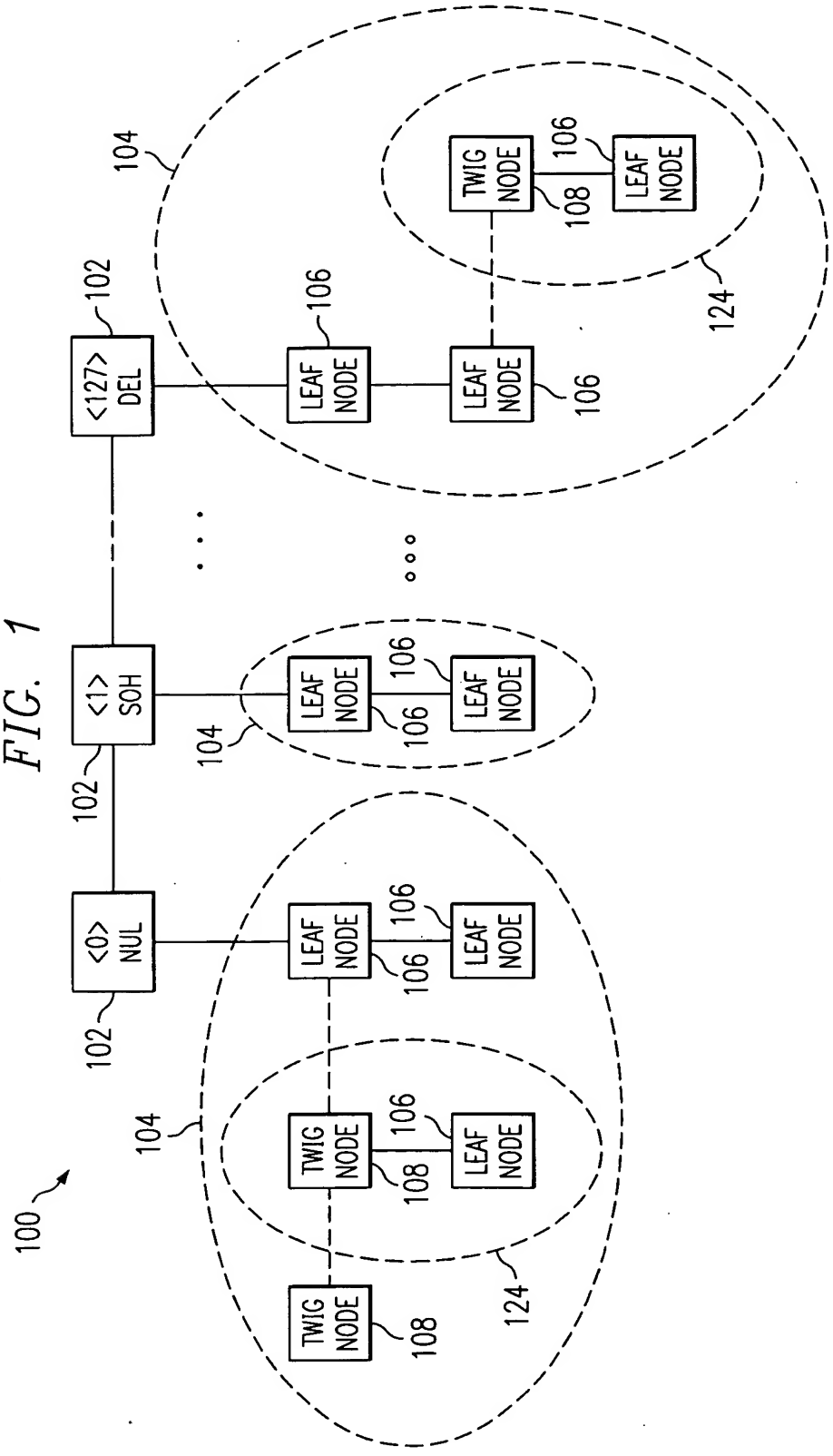


FIG. 1

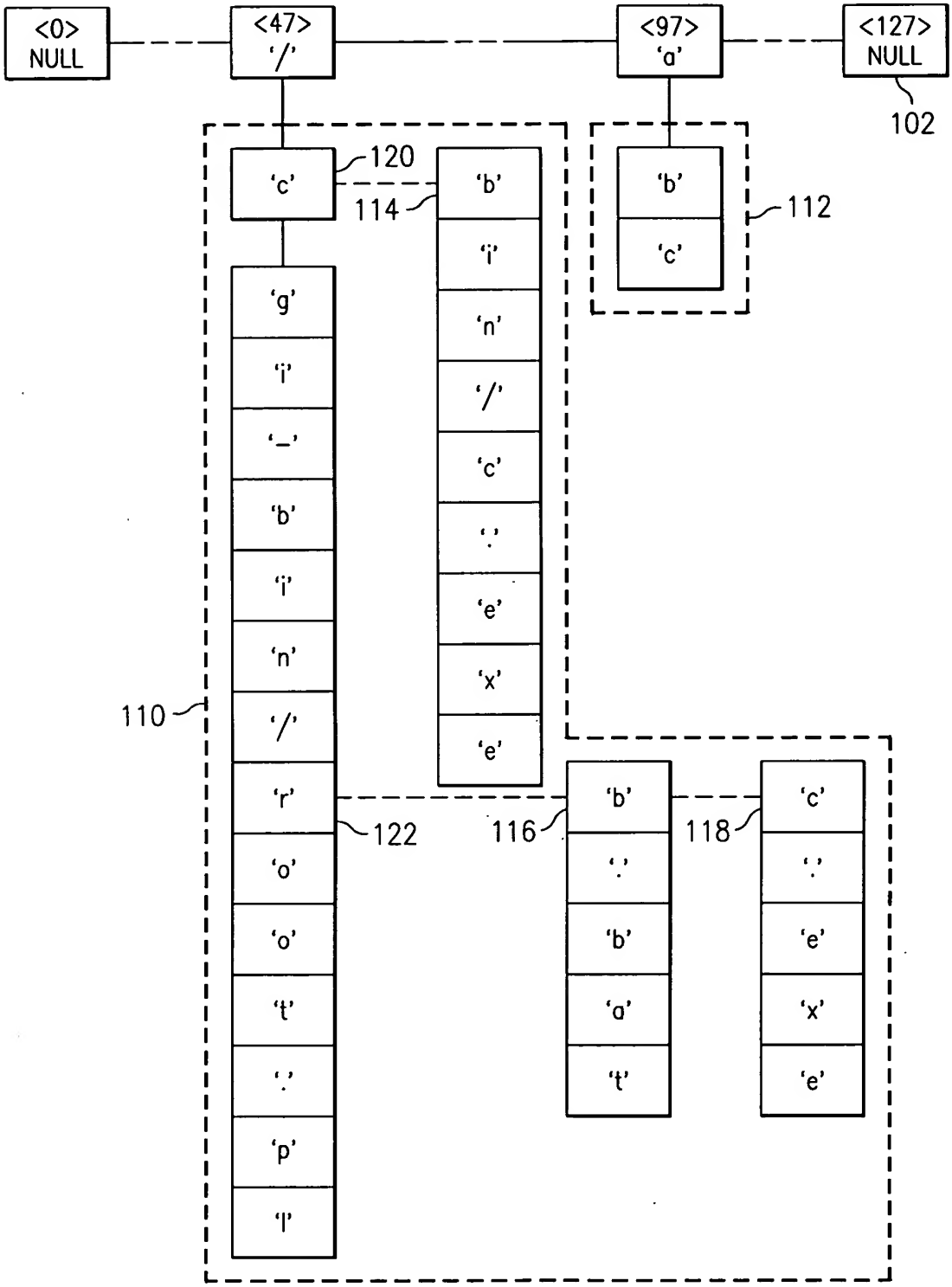

<0>
NULL
<47>
'/'
<97>
'a'
<127>
NULL
102
'c'
120
114
'b'
'i'
'n'
'/'
'c'
'.'
'e'
'x'
'e'
'b'
'c'
112
'g'
'i'
'_'
'b'
'i'
'n'
'/'
'r'
'o'
'o'
't'
'.'
'p'
'l'
110
122
116
'b'
'.'
'b'
'a'
't'
118
'c'
'.'
'e'
'x'
'e'

FIG. 2

FIG. 3A

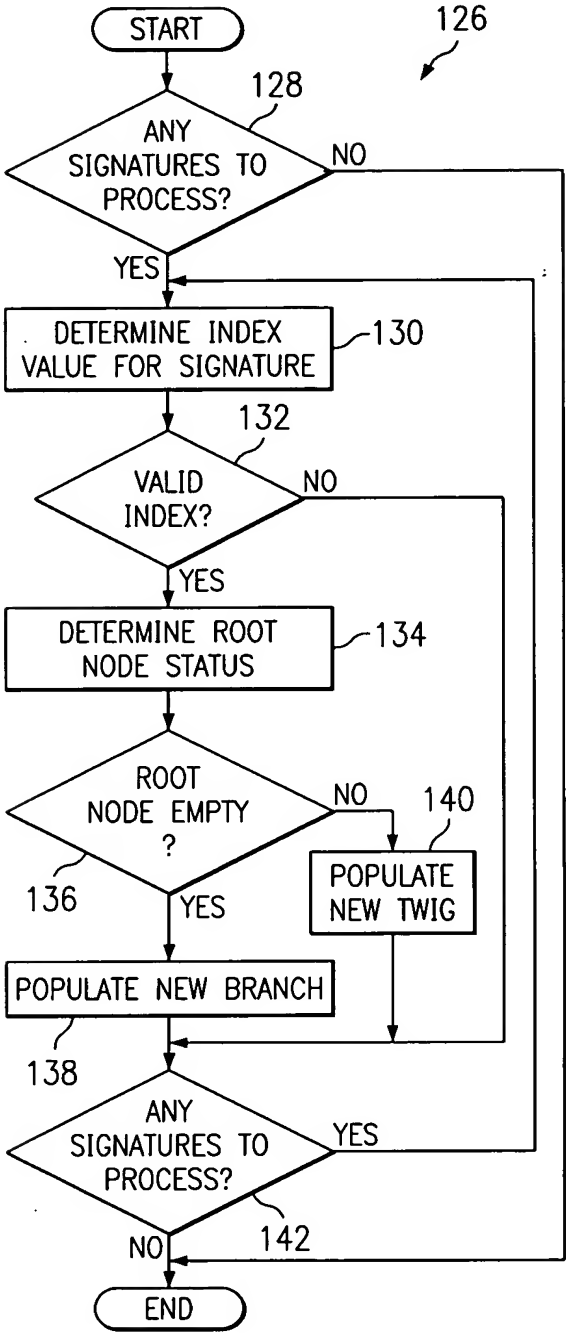

126
START
128
ANY SIGNATURES TO PROCESS?
NO
YES
DETERMINE INDEX VALUE FOR SIGNATURE
130
132
VALID INDEX?
NO
YES
DETERMINE ROOT NODE STATUS
134
ROOT NODE EMPTY ?
NO
140
136
YES
POPULATE NEW TWIG
POPULATE NEW BRANCH
138
ANY SIGNATURES TO PROCESS?
YES
142
NO
END

FIG. 3B

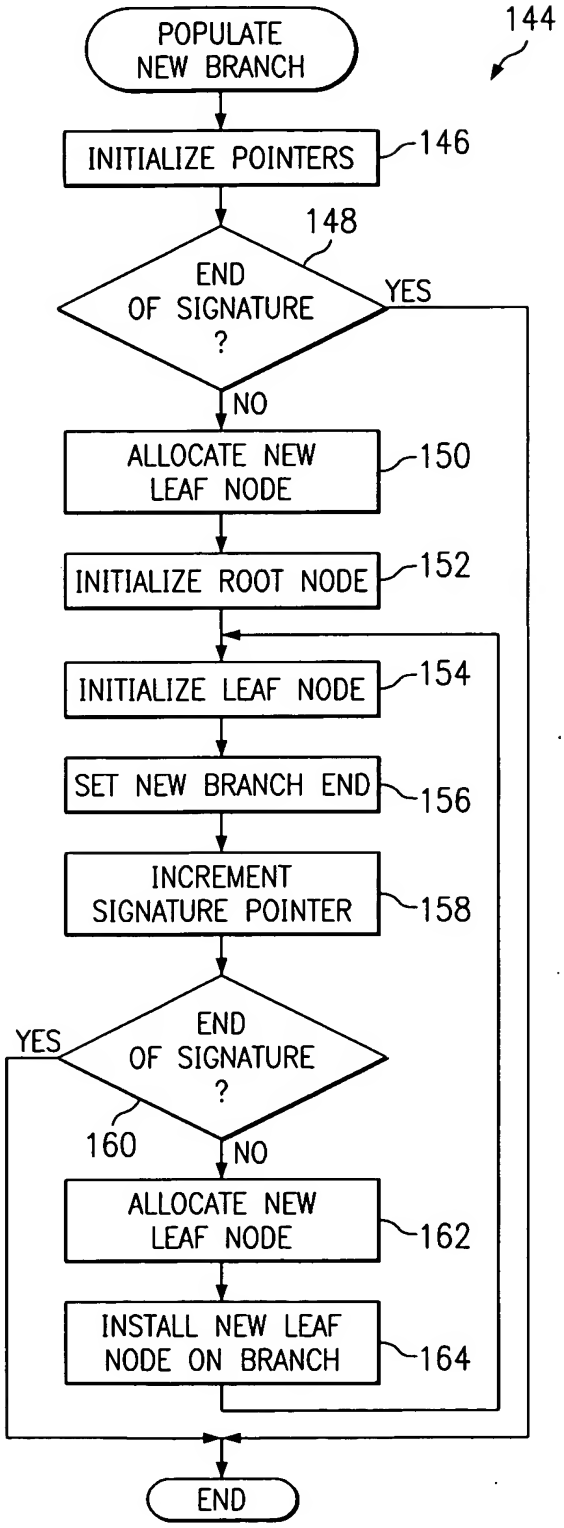
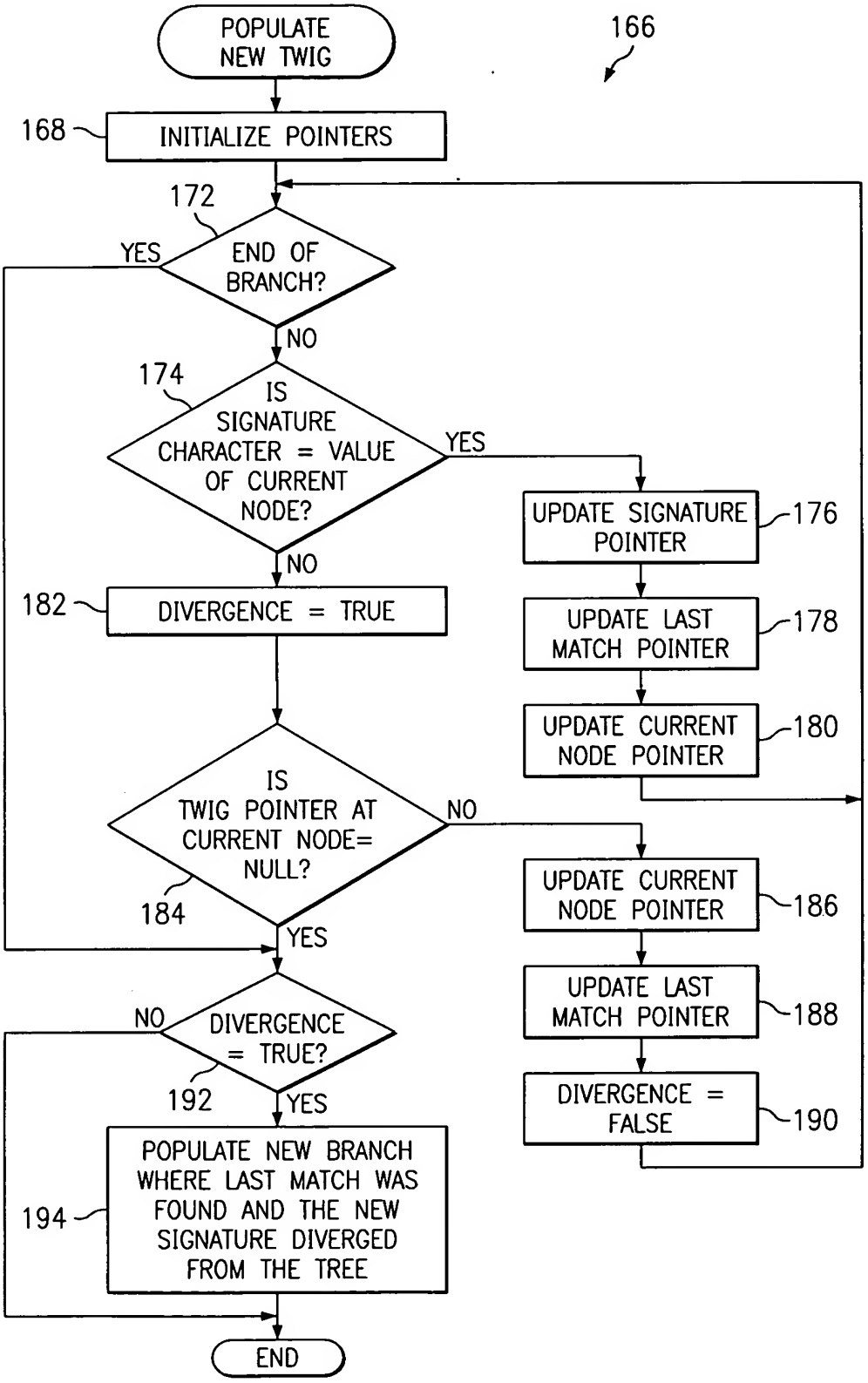

144
POPULATE NEW BRANCH
INITIALIZE POINTERS
146
148
END OF SIGNATURE ?
YES
NO
ALLOCATE NEW LEAF NODE
150
INITIALIZE ROOT NODE
152
INITIALIZE LEAF NODE
154
SET NEW BRANCH END
156
INCREMENT SIGNATURE POINTER
158
END OF SIGNATURE ?
YES
160
NO
ALLOCATE NEW LEAF NODE
162
INSTALL NEW LEAF NODE ON BRANCH
164
END

FIG. 3C


POPULATE NEW TWIG
166
168
INITIALIZE POINTERS
172
END OF BRANCH?
YES
NO
174
IS SIGNATURE CHARACTER = VALUE OF CURRENT NODE?
YES
NO
UPDATE SIGNATURE POINTER
176
UPDATE LAST MATCH POINTER
178
UPDATE CURRENT NODE POINTER
180
182
DIVERGENCE = TRUE
IS TWIG POINTER AT CURRENT NODE= NULL?
184
NO
YES
UPDATE CURRENT NODE POINTER
186
UPDATE LAST MATCH POINTER
188
DIVERGENCE = FALSE
190
NO
DIVERGENCE = TRUE?
192
YES
194
POPULATE NEW BRANCH WHERE LAST MATCH WAS FOUND AND THE NEW SIGNATURE DIVERGED FROM THE TREE
END

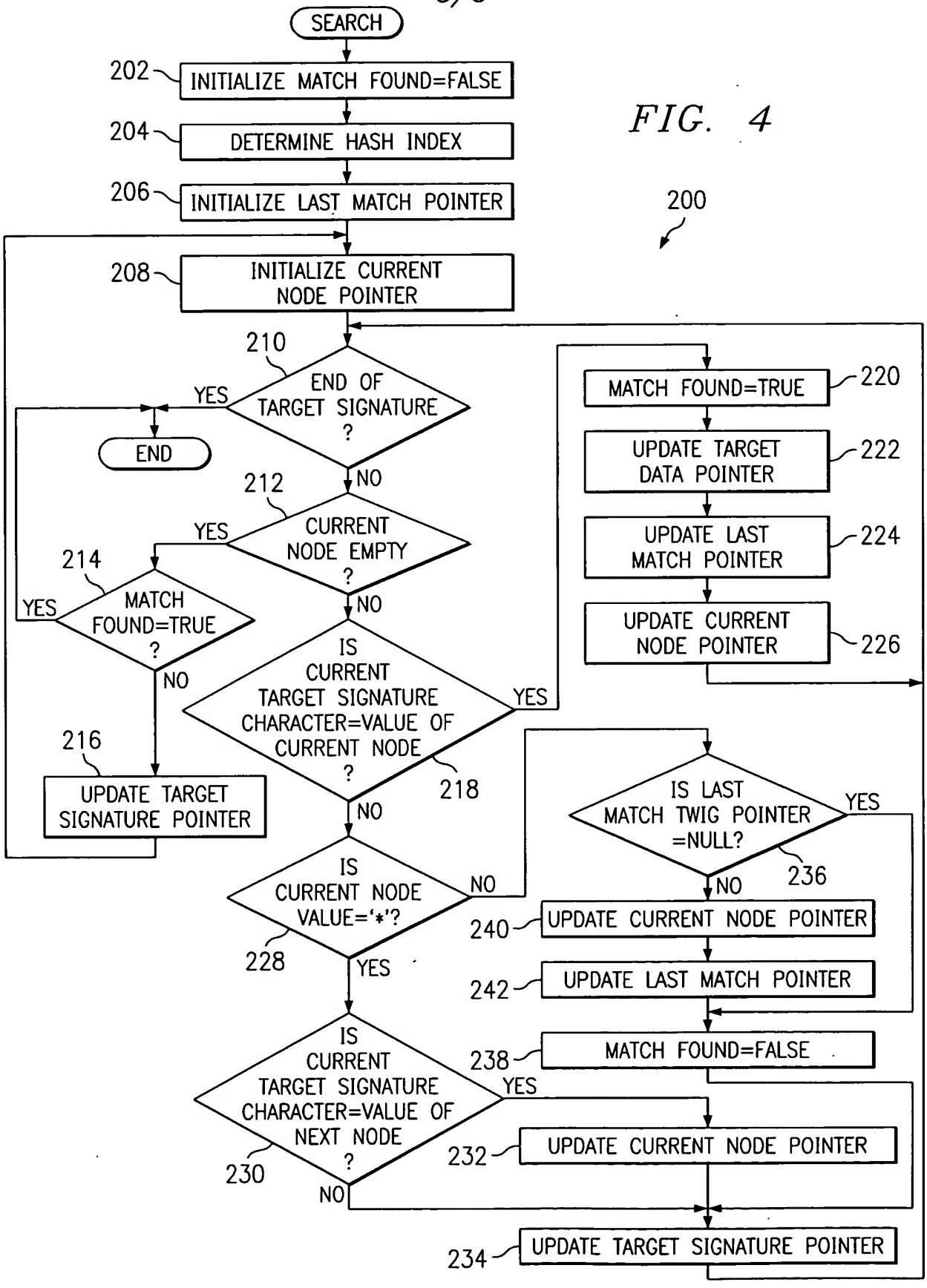

SEARCH
202
INITIALIZE MATCH FOUND=FALSE
204
DETERMINE HASH INDEX
206
INITIALIZE LAST MATCH POINTER
208
INITIALIZE CURRENT NODE POINTER
210
END OF TARGET SIGNATURE ?
YES
END
NO
212
CURRENT NODE EMPTY ?
YES
214
MATCH FOUND=TRUE ?
YES
NO
216
UPDATE TARGET SIGNATURE POINTER
NO
IS CURRENT TARGET SIGNATURE CHARACTER=VALUE OF CURRENT NODE ?
218
YES
NO
IS CURRENT NODE VALUE='*'?
228
YES
NO
IS CURRENT TARGET SIGNATURE CHARACTER=VALUE OF NEXT NODE ?
230
YES
NO
MATCH FOUND=TRUE
220
UPDATE TARGET DATA POINTER
222
UPDATE LAST MATCH POINTER
224
UPDATE CURRENT NODE POINTER
226
IS LAST MATCH TWIG POINTER =NULL?
236
YES
NO
240
UPDATE CURRENT NODE POINTER
242
UPDATE LAST MATCH POINTER
238
MATCH FOUND=FALSE
232
UPDATE CURRENT NODE POINTER
234
UPDATE TARGET SIGNATURE POINTER
200

FIG. 4